TMF

April 1989

THE MAC FLYER - For Greater Safety in MAC Air Operations

314th TACTICAL AIRLIFT WING

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A Scroll in the Dark

As it was written.

By Capt. Donald L. Rosenberry
316 TAG
Yokota AB, Japan

(Author's Comments: On the far side of the remote island of Nubilelass there's a cave. The opening is half submerged in green, algae-filled water. Groveling about in the nether corners of the cave's interior, we discovered a scroll embedded in the muck, along with a rather tasty fifteen and one half-pound lobster. We hired a retired goat retreader from Wales, whom we believed to be the only person alive who could translate the document. Turns out it was written in English for the birdmen of yesteryear. Here's the translation.)

It is still, and the winged warriors repose. The air is thick from exhalation of bodily humours and vapours of spirits plentifully quaffed in the hours of the waning sun. These valiant heroes rest uneasy, though. They are goaded by specters of confusion and tormented by visions which spill forth from the brewery-bowel bottles and bars.

At the fourth hour before the dawn, the appointed messenger, a stout fellow, strideth amongst the valiant. Shouteth he: "Wake thee and gyrd thyself! Don your gear and get thee to the gathering room. There, he that dispatcheth thy fate awaits to impart his design for thy destiny this day. Be bold and move swift, for so it is spoken by he that runneth thy schedule."

And arise they did. Swiftly they poured forth upon the messenger vile and offensive epithets with a message of their own. They assailed his maternal relations' discretion, questioned his paternal acquaintance, and marked his flailing body with books and other objects within reach. Alas, the disturbance would not be quieted, as warriors revile those who make short their feasts, frivolity, or fatigue. Finally the din abateth, and yet another messenger lay dead among the soil and animal refuse scraped from the soles of the warrior's boots.

Having quenched the thirst for blood, the winged now clamour about, yet slowly, as in a daze. Spirits are heavy in preparation for the tasks he will doleth discriminatingly among the best.

Preparation is complex as the valiant ones fill battle clothes with personal necessities: socks, wizard wheels, caps, and checkbooks. These cloths are ornate receptacles emblazened with victorious symbols of success in battle: AADDIIDDAASS, KNIKE, R-MART, and the like. Emboldened by these idyllic icons of power, they venture forth in search of fruit, fiber, and potions

Honorable Mention 1988 MAC Flight Safety Writing Contest

to quell the internal drumming from the prior day's ribald misdeeds. Alas, though the flesh is comforted at first by the grain, soon the mind and stomach reeleth on. Yea, that even which is vertical is doubted and all matter of noise deemed excessive and intolerable, and their movements are restricted by the random need for a large container.

They soon gather in the hall of things spoken and, with the shriek of one not present the eve before, all is quiet save the now all too familiar internal throbbing. They now find themselves in the presence of he who worketh not with a snapshot, but with an enlargement. Suddenly, he that maketh the ground quake and the winged weep riseth and spake of prior evils and its personal self-penance. He then called forth from their very midst the shiny ones, they to speak.

Filled with an internal worth of outrageous proportion, they of golden hair bring forth parchment and speak of routes, drops, approaches, training, and wearisome matter of every description, for that is their way.

Beyond the endless stream of knowledge imparted, one final rogue riseth and spake. This doomsayer speaketh of all manner of atrocity past, then his words change in pattern. He speaketh of caution, planning, alternates, and foul winds, some of which arose even as he spoke. His words blurreth as the emotion pervadeth his thought and, at his zenith, his pitch remaineth high and he bade the warriors fly into battle with Thor and the elements with care. Then sat he quietly. Again the shrieking one awakeneth the massed, urging they rise as one, signaling the departure of the important one.

The exodus is without ceremony and the throng reacheth the setter of the schedule enmasse. "Kanst thou not shorten this testing?" and "Cancel is an option," shouteth the crowd assembled.

"Thy transmission is weak and thy message unclear," answereth the vermin. "Now be thee gone! Fly thee well and prompt be thy efforts, for if thee vary from the hour as written thy shall feel my wrath!" Glowing were his eyes and thunderous his voice, signaling the end to this conversation amongst birdmen.

Knowing that he sits at the side of he that holds the power, the leaving is silent. Mixed though, with the constant throbbing of bodily fluids, is a crisp visage of other times and places. Of meetings in dark places where personal identification isn't possible. Stepping lightly and bedecked with optical polarizing devices, the warriors mount up for the caravan to their armored steeds. They are beset by the heat and the light of the rising solar furnace. Their eyes reddened, stomachs heaving, heads pounding, and tongues shriveling, they strike out for their mounts courageously—then crawl the rest of the way.

"Tactless flight, check in," came the croaked command. The winged wingmen respond quietly and without haste, for they feel put upon to suffer so.

"What be thy wish! Thy bother us when we encounter difficulty. Stand thee by!" sharply responded Four.

"Number 4, raise thy voice no more," speaketh the one called by name "Lead." "The water doth drain from thy pores in great quantities, thy stance be frail, and thy breath foul, thou dost not rate special preference. Art thou with us this day?"

"As my steed appeareth crippled, I must resign myself to join thee at another time," came the reply. "No wait, but ho! We have from the land of caring a black-cloaked cube of mystery purported to have solved that which plagued us. We ride!"

And so the brave, bold, and

belittled sallied forth into the air to confront the best and the worst in their efforts to accomplish their tasks. Vigilant to the edge of their power to strive, they seek those places of turning, channels for speaking, and places to deposit their wares, but their efforts are fraught with things most troublesome.

In the legends of the time, it is written, "He that partaketh of the fruits of the eve, exerteth thyself in fanciful efforts to catch the eye of thy desired one, and consume products without care of balance, must yield to the absolutes of time. He that push this law rideth not in confidence, for the flesh canst not be counted on in times when action must be swift. Though the steed be strong and of noble heart, it is limited to the efforts of the warrior within, who guideth the steed in every effort."

The valiant ones fly in the thick of the fray, but this day they find even simple tasks make for great efforts. The wind that beareth these birdmen aloft do buffet them most unmercifully. Unrelenting, the winds pitch and toss the winged until they find the searching for personal tranquility overcoming the need to control the steed.

"Three, Lead," sayeth he that reach each new challenge first. "Thou art sluggish and do stray from position. Wilst thou not cleareth thy thoughts of all refuse and remain in thy appointed position?"

"Verily, as I speak, we redouble our conscious vigilance, and pursue our proper place. We are consternated by thy words and protesteth thy implication. Our current efforts exceed even our very physical stability. He that rideth to my right hath bestowed upon the steed a part of himself. He lathered to such great extent he giveth of his body which now covereth the area in an unpleasant visual reminder of events past. In passing, I dare to remark there is one amongst us that doth perceive wind, rain, and sharp light approaching at high speed."

"Lo, and we too perceive its presence. Indeed we now enter and be swallowed in the darkness. Tactless flight, Lead. I feel the need to remain close waning. Get thee apart! Disperse as it is written."

And so the winged find added to their piteous state the demand to execute another movement with great haste. Without proper guidance, unable to see clearly the path required, and carrying not a soothsayer, it befell each to seek a path on their own. With the passage of time came a clearing; from the dark emergeth only "Two," "Three," and "Four."

"Lead, Two," spake the newly appearing first in line. "We have recovered our sight, but we knowest not our place. Come hither to us for we seek to follow thee. Come to us for we are alone and sweateth profusely. We are beset with glowing red lights many in number, find a foul odor emerging, and with it the very clouds seem to have penetrated our steed to join us. Come guideth us back to our assigned path that we may droppeth our CDS at the chosen time to the select few, and avoideth the wrath of he that waits."

"Sad but thy shouldest verily droppeth in fatal repose," cometh the reply. "We have been gripped ourselves by the light and embraced by the water in the various forms called by name, solid, liquid, and vapour. We bid thee well, and seek for ourself solace in the fold of our origin."

So it came to pass these valiant heroes found not the true way, returning much beyond the agreed upon hour, without even the slightest vestige of success. As they foresaw, there was to be a second gathering to be held. This in their honor.

He that maketh the bold riseth and spake unto them. Presenteth he varying options, speaking of toil behind large animals, continuous circular journeys while barely aloft, and transition to employment beneath the surface in hollow tubes with foul fluids. He worketh himself into a most fearsome snit, which penetrateth the winged to their deepest thoughts and indeed called to them questions of their very being as men.

As he neared the ending to his words, sayeth he that there would be words put to parchment, they reflecting his mood concerning frivolity and flight. Sayeth he in closing "Hear thee these thoughts. Shouldst thou be tempted to exceed their borders, remember only how far thou might falleth, and how little thy bounce against dense platforms. Yea, even thee that mount the winds might find failure from the keg."

From among them steppeth a shiny one, and readeth he from a scroll of fine production. "A winged warrior will not proceedeth aloft lest said valiant one perceiveth all things as they are, have clearness of thought, and reacteth quickly and properly to that which affect him. Be it said the fruits of the cask shall remain clear of winged interior from the tenth hour before the rising and gathering at the place of speaking. AS IT IS WRITTEN, SO SHALL IT BE!" ✈

A former *TMF* Associate Editor, and present navigator and Chief of Safety at the 316 TAG, this story is Captain Rosenberry's latest attempt to impress us with his literary prowess. Writing for *TMF* must be a hard (but admirable) habit for some to break.

Seven Days to Remember

Get-home-itis strikes again.

By Maj. Keith Curtis
HQ MAC/IGFF

Day 1

I'd never felt so cold in Florida before. I was standing on the Rescue ramp, freezing, waiting to board an HC-130. It was early January, 19 degrees, with a windchill near zero.

As a second lieutenant H-3 copilot, I was part of two crews being flown to Davis-Monthan to ferry two Mid-Air Retrieval System (MARS) CH-3Es to Tyndall. TAC was deactivating its tactical drone reconnaissance squadron at D-M and we were receiving two of their MARS-equipped helicopters to support our drone mission at Tyndall.

I was looking forward to this trip because it would be my first long cross-country helicopter flight. We planned to fly to D-M Sunday, and do an acceptance flight that day. We would depart Monday morning and arrive at Tyndall Tuesday evening. Our assistant operations officer, a Coast Guard exchange officer, would be mission commander and flight lead. I was assigned to Number 2 aircraft, with our chief of stan/eval as aircraft commander.

Early Sunday morning, we boarded a military bus to take us to Eglin. Once there, we learned our HC-130 was broke and had a 45-minute ETIC. We walked to the flightline snack bar to get a cup of coffee. Naturally, it was closed. Stuck on the flightline, freezing cold, we literally "ramp-danced" trying to get warm. Finally, about an hour later, our aircraft was ready and we departed.

We landed around 2 o'clock in the afternoon. What a difference! From bone-chilling cold to 55 degrees, with the dry desert air making it feel even warmer. We immediately began preparations for accepting the aircraft—checking equipment inventories, historical records, and aircraft forms. We performed acceptance flights, but both helos had problems needing attention. Lead's heater and engine anti-ice were inoperative, and we had trouble with Number 2 engine. After several adjustments and in-flight checks, our aircraft was ready, but Lead still had the same problems. Given the expected climatic conditions, both systems were critical. Also, both helicopters had the aft ramps removed to accommodate the MARS equipment and, with a big hole in the

rear, an operable heater was a must. We turned the helos over to maintenance. They gave us an ETIC of 10 that evening.

Day 2

Monday morning we arrived on the flightline at the appointed time and were told our aircraft still weren't ready. The unit was short on people and parts, but maintenance expected to have both helos ready by noon. Noon came and went so our mission commander decided it would be too late to start for Tyndall that day. My crew checked back into billeting while Lead's crew stayed to test fly their helicopter. They finally showed up at our rooms that evening and told us their helicopter was ready to go. We turned in early, planning an early morning launch.

Day 3

I woke Tuesday morning and got ready to leave but, as soon as I opened my door, I knew we weren't going anywhere. Overnight, a weather system had moved in—it was raining hard with a low overcast. We checked with Weather and told there would be good weather tomorrow, but there was a larger system right on the heels of this one. If we didn't get off tomorrow, they predicted it might be several days before the weather cleared. We stayed in our rooms another night, realizing we'd planned to be home this very evening.

Day 4

Wednesday morning, as forecast, weather was good, although freezing cold. We took off, glad to finally be on our way. We had barely cleared D-M's airport traffic area when Lead announced his heater and engine anti-ice were inop again. The ACs discussed whether we should turn back, but our mission commander felt maintenance had done all they could and turning back now would mean getting weathered in again. We all wanted to complete the mission and were looking forward to the cross-country flight. Besides, if it looked like we'd be weathered in at D-M, we might be recalled to Tyndall and different crews assigned the mission. We decided to press on.

Our first refueling stop was Biggs Army Airfield, El Paso, Texas. I discovered en route it was cold in the cockpit, even with an operable heater. That big hole in the rear let in more cold air than our heater could handle. It helped a little to put the curtain down behind the jump seat, but we stayed cold. I don't know how Lead's crew could stand having no heater at all. I was thankful I didn't have to find out.

We checked weather for our next leg to Laughlin AFB, Del Rio, Texas. The weather system, which kept us an extra day in Tucson, was now east of El Paso. The weather forecaster expected VFR conditions en route, but couldn't be very specific because of lack of weather reporting facilities along our route. A couple PIREPs indicated light rime icing in clouds north of our route, so we wanted to remain clear of clouds.

Ceilings began dropping about 30 minutes east of El Paso, but we continued since we were still VFR. Approximately 30 minutes later, we approached high terrain and saw clouds down to the ground. We probed around looking for a way through, but couldn't find one. We had no choice but to turn back for El Paso.

Day 5

Thursday morning, we checked with Weather again, getting pretty much the same briefing as before. We hoped the weather to the east had improved because that other weather system we beat out of Tucson was now approaching El Paso. All we could do was take off and see if the weather would let us through.

As our formation approached the same point where we were forced to turn back the day before, it appeared we could make it through. We entered the pass, encountering thin clouds, but still able to see Lead ahead of us. As I looked back, however, I got the mental impression of a door being slammed shut behind us. Clouds completely obscured the pass. If we didn't make it through, we couldn't turn around and go back the way we came.

Continuing on, we encountered another area of high terrain blocking our flight path. Clouds again obscured the pass. Thoughts of turning back popped into my head, but I knew we'd have trouble getting back through the pass behind us. Lead thought we could make it, so we dropped back to extended trail to follow him through. The pass was wide at the entrance, but narrowed further on. As Lead entered the pass, we had difficulty maintaining visual sight of him. I told my AC we still had room to turn around and stay in VFR conditions, but he said he could still see Lead and continued. We were committed now, because the pass was too narrow for us to turn around at our low altitude. Almost immediately thereafter, we lost sight of lead.

My AC called lost visual and started climbing. Lead didn't respond to our call. We couldn't deviate from our heading as prescibed in lost visual contact

procedures because of high terrain on both sides. I was really scared, imagining a mid-air with Lead. Ice was rapidly forming on the windscreen, and we didn't know if we could climb out of it. We repeatedly called Lead for his airspeed and altitude, but there was still no response. I heard the landing gear warning horn go off and instinctively reached down and silenced it without even looking at the airspeed indicator. The H-3 landing gear warning horn comes on any time your airspeed is below 60 knots and the gear isn't down and locked. During drone recovery operations, the warning horn becomes a nuisance, and, as a copilot, you become conditioned to silencing it. I kept straining my eyes trying to see Lead through the clouds. Moments later, I glanced inside at the instruments and my heart nearly stopped. Evidently, everyone was looking outside the aircraft, no one was on instruments, because the airspeed indicator was at ZERO! The flight mechanic in the jump seat saw the same thing and at the same instant we both keyed the intercom, shouting "AIRSPEED!!" We were still in a nose high attitude, indicating a climb on the VVI. The AC dumped the nose and dove to regain airspeed as I called out airspeed and altitude. We lost about 500 ft regaining 50 KIAS. I don't know how close we came to the ground. We leveled off and reestablished a 70 KIAS climb. I kept my eyes glued on the instruments, my heart still pounding.

We had just pulled out of our dive when Lead finally called, "Two, we're on top, in the clear, at 5,000 feet. Where are you?" We didn't tell him what happened, only, "We're still in the clouds at 4,500 feet." We had a lot of ice, but were still able to climb. Sure enough, as we reached 5,000 ft, we broke out into blue sky and dazzling sunlight. We spotted Lead about five miles away at our ten o'clock and called for rejoin. As we closed on Lead, the warm sun melted the ice, causing a healthy vibration as the blades shed ice. Everything eventually smoothed out, including my heart rate, as we flew to Laughlin AFB.

Sixty miles out, our concerns about having to descend through icing conditions disappeared as we passed the leading edge of the front, with clear skies ahead.

Our next stop was Bergstrom AFB, Austin, Texas. The leg to Bergstrom was uneventful, for a welcomed change. I was wrung out physically and mentally from our experience that day and needed a good rest.

Day 6

It was freezing cold Friday morning as crew transport delivered us to our aircraft. They had us parked out in the North 40 in the old SAC alert area, far from the flightline. Our helicopters were covered with frost, which caused a problem. Lead's tail rotorhead had been leaking ever since we accepted the aircraft at D-M. It was barely within limits, but required servicing after every landing. Lead carried extra cases of oil just for that purpose. Lead's crew chief said he couldn't service the gear box without a maintenance stand because the frost made it too slippery to climb on the aircraft. Our mission commander said he would have transient maintenance bring a stand, while we went to base operations to check weather and file.

We returned about an hour later and discovered transient maintenance still hadn't delivered the stand. The aircraft were preflighted, ready to go, except for servicing Lead's tail rotor. Our mission commander told his crew chief we couldn't wait any longer for a stand and to climb up and service the tail rotor. The crew chief refused, saying it was too dangerous. Our mission commander became upset, and said he would do it! He told us he had serviced these before in the Coast Guard. Sure enough, he climbed up on the tail and serviced the gear box. It was unusual for us to see a pilot servicing a gear box. They sure do things different from the Air Force in the Coast Guard, I thought. I was still surprised we let him do it, but everyone just wanted to get home.

As we taxied out for takeoff, we saw our maintenance stand finally arrive. We lined up for a rolling takeoff, but before we could start, Lead reported a blade pressure light. I couldn't believe it, another delay. Luckily, Bergstrom still had TAC CH-53s, so their maintenance folks brought out a blade servicing kit to check the blade. Fortunately, the blade pressure light was caused by a decrease in pressure from the

temperature change, not a crack. They repressurized the blade and we were on our way again two hours later.

We had filed IFR to England AFB, Alexandria, Louisiana, for some airways training, but still needed to avoid clouds due to forecast icing. The cloud base was close to our cleared altitude. We briefed that if we encountered clouds, we would descend to remain VFR and request a lower altitude. My crew was still leery from what happened to us the day before.

As we approached cruise altitude, Lead started to enter clouds. We dropped back, expecting him to descend as briefed, but instead he went right on into the clouds. He called, "I think we can get on top of this." We stayed below the cloud deck, wondering what to do now. We'd filed as a formation, but weren't going into those clouds after Lead. Just as we decided to tell ATC our intentions (before they asked), Lead called that he was on top and hadn't encountered any icing. Evidently, the overcast was only about 500-ft thick. My AC decided to go ahead and climb through the clouds to rejoin Lead. We told Lead to maintain 90 knots and we would climb at 70 knots to ensure separation when we came out of the clouds. We broke out, spotted Lead about three miles ahead, and rejoined.

It was dark when we landed at England AFB. We still had enough crew duty day to make it to Tyndall so we hurried to base operations to file. The weather forecast between England AFB and Tyndall AFB called for thunderstorms. It would be a long leg for our CH-3s so we wouldn't have much reserve fuel to circumnavigate thunderstorms, but we wanted to try to get home. Our mission commander called our detachment commander to tell him our intention to fly home that night. I could tell from the one-way conversation our commander didn't see it that way. Our mission commander told him we would be able to see the lightning at night to circumnavigate thunderstorms. If weather was good, we would be home that night. If weather was too bad, we could divert to another field, which would be no different than staying overnight at England. When he hung up, our mission commander told us our commander said under no circumstances were we to attempt to come home tonight and to go into crew rest. Reluctantly, but wisely, we checked into billeting.

Day 7

Saturday's weather was good, and we finally arrived home after seven trying days. Our commander met us when we landed at Tyndall. After briefly welcoming us home, he told the mission commander and my AC he wanted to see them in his office. I sensed from his tone that it wasn't going to be a pleasant experience for them. I was glad I didn't have to be in there, but realized we all shared in any blame for what happened on this mission.

* * * * * *

We all had been affected by get-homeitis, a very insidious disease afflicting aircrews. You don't realize at the time how it clouds your judgment. As a group, we went along with the decisions made. Even when we knew we were pressing, no one, except Lead's crew chief who rightfully refused to climb on a frozen helicopter, raised any objections. We nearly paid for it too. We just sat back, relying on our AC's judgment to pull us through and get us home safely. In that sense, our crew coordination completely broke down. Everyone is responsible for what happens on their aircraft, not just the AC, even though he or she will be ultimately responsible. You don't crash by crew position.

Every professional aircrew member has a responsibility to raise questions or voice objections when intentions are unclear, directives violated, an unsafe act is about to be committed, or an unsafe decision made. Also, aircraft commanders need to solicit inputs and listen to their crewmembers—not try to do it alone. Don't disregard inputs from "young" and supposedly "inexperienced' crewmembers. MAC flight mishap statistics clearly show it's often our more experienced crewmembers who are crashing, for the most part, perfectly good airplanes. To disregard any input from any crewmember makes you susceptible to having a mishap.

I learned valuable lessons on this mission. Some crews aren't so lucky. There were many poor decisions made and supported only because we didn't want to delay the mission—first, for fear of having our "good deal" cancelled but, in the end, for just wanting to get home and end our 7-day ordeal. For me, it turned out to be "Seven Days to Remember."

Losing Touch

The world became *we* and *they*.

"Hey Mac! How ya been?" a voice boomed from across the O'Club dining room. Mac MacKenzie searched for the source and, to his delighted surprise, saw Capt. John "Dip" Dugan—indeed a face from the past.

"Dip! You ol' son-of-a-gun, where ya been?" Mac shot back enthusiastically. After the two shook hands and insulted each other's looks, they decided to head for the brew stand.

"So what've you been doing, Dip? The last I heard about you, you were on your way to the puzzle palace for bigger and better things." Dip dipped into his bone-lined, custom made snuff can and packed a little before answering. Mac took the opportunity to wave in the barmaid and order two.

"Yeah Mac, I guess it *has* been over eight years since I left the squadron for that job. Ha! Eight years, seven hits to O-4, two extension boards, and a hundred years worth of quality, *military* flying at the squadron level," he answered.

Showing obvious embarrassment, Mac wished he'd remembered that Dip *was* a captain when he last saw him, eight years ago. Well, he thought, might as well eat *both feet*. "So what went wrong?" he asked.

"Wrong!" Dip laughed out loud. "Nothing went wrong, everything went right!"

Now Mac was in a quandry. Geez, he thought, maybe I should ask him about the weather. "Okay, I'll bite, what's your story?"

"Yeah, I guess it would sound kinda confusing if you hadn't seen me for awhile," he replied. "Let's see, the last time I saw you, I was in wing DOV, wasn't I?"

"Right," answered Mac. "I was a second lieutenant, and had been a copilot for about a year. I've got to admit, you were my role model. And, I might add, have continued to be ever since."

"Save the flattery MAC, pay for the beer instead," Dip said, suddenly serious.

"No, I mean it. Oh, and I will pay for at least the first round," Mac continued. "Your career represented everything I wanted mine to be. On the flight deck, you were good, damn good. Only flight examiner around that was formation lead, LAPES, CDS, and AWADS qualified. And you taught me so much about all of them, and more. You propped up my confidence as a copilot. You convinced me of the copilot's importance, a lecture I've passed on hundreds of times myself. Wasn't that good enough?"

With a sigh, Dip answered, "Good enough? It was great, I didn't realize it at the time. Remember though, back then you weren't going to get anywhere from that position. At least that's what many of us thought.

"So I volunteered and won my selection to a desk job. At the time, I thought it would be alright. Working in Combat Tactics Plans sure seemed to be a place where I could do the most crews the most good. But that's not the way it worked out."

"Ah," Mac nodded, "discovered you couldn't push paper through the mill, huh?"

"No, actually that wasn't the problem at all," Dip answered. "I went there thinking I would set the world on fire. I had a hunch all along that headquarters weenies had lost touch. Expecting to find prior crewmembers who couldn't cut it on the line, I honestly believed I would make a difference."

"So what happened when you got there? What did you find?" Mac asked.

"To my shocking surprise, I found people there who really cared. More than that, I met crusty colonels who actually knew a lot about flying airplanes, about tactics, about combat!" Dip's voice began to rise. "Sure, like with any basket of apples, there were also some pro-circuit nerds; but for the most part, I joined a group of dedicated, professional aviators. Aviators and support people who really did care."

"Well, excuse me Dip," Mac interrupted, "I must be missing the point here someplace. Up 'til now, it sounds like you were in your element. I've got some figures here, but they're not adding up."

"Yeah," Dip smiled, "I guess you'll have to listen to the whole story. As I recall, you never could compute a lead point. Hey barmaid, set us up with another round of that Colorado Koolaid." They both laughed.

"It all started like this, Mac," Dip began, "I'd been there about two months, I had even pretty much figured my way around the building when that C-130 crashed into the mountain during COPE THUNDER. Remember that one?"

"I think so," Mac answered. "Wasn't that the one where the crew was flying off an old chart, and they had the radar offset in the wrong direction?"

We was *me*; and *they* were the crews on the line.

"Yeah, that's the one," Dip grumbled. "The ship hit the sand at our office over that one. The accident board must've written over a hundred recommendations on their report. I'm exaggerating of course, but most fell under the responsibility of my office. That's when I started down my road to ruin and confusion.

"I studied their recommendations over and over again, and thought I was reading the kind of classic garbage I always thought headquarters pukes put out. Come on, I thought, they can't be serious. They want me to write this into regs. This is all common sense, no crews in their right minds wouldn't consider these

factors before planning and executing a tactical profile. So, I set out on my crusade to right the wrongs of the world. Little did I know that those dragons were made like windmills.

"The first thing I did was call around to several of the units. Now I never once thought my name was legendary, and I fully expected to earn my credibility but found I wouldn't even be given that opportunity."

"What was it?" Mac asked. "Wouldn't the boss let you talk to the guys in the trenches?"

"That's what I would've thought before I got there, Mac," Dip continued. "No, as a matter of fact, he encouraged it. Believe it or not, it was the guys in the field who wouldn't give me the opportunity. On the phone, they treated me like I was some kind of an idiot. To every question I asked, they treated it like 'Ho hum, another stupid question.' To every recommendation I made, they accused me of not having any concept of what was going on. I tell ya Mac, I wanted to reach through the phone receiver and smash their faces. With that attitude, I'd taken my first wrong step."

"Oh, don't be too hard on yourself, Dip," Mac consoled. "I think I understand how you must've felt."

"You may understand how I felt Mac, but that's not all. You see, while I was deep into the middle of this foray, we lost another '130. Remember the one that crashed two miles short of the runway at Camp Tarpley? They were using NVGs, but nobody was monitoring the instruments."

"How could I forget that one. That's the one that changed almost all our NVG procedures."

"Yeah," Dip said. "I know, I wrote it. But here again, I ran into the same problem when I tried to get to the bottom of it. Once again, it appeared to me that good ol' common sense could've prevented not only the making of widows and orphans, but also the reams of regulatory 'guidance' that followed. It literally wrenched my stomach to write down 'techniques' and healthy thought patterns, and put it into regs."

"Yeah, but Dip," Mac said, "sometimes what *you* think is obvious, ain't so obvious to others."

"I know that now, Mac. Don't you see the trap I was falling into? I began to see my world as *we* against *they*. We, was *me*; and *they* were the crews on the line. I got to the point where I not only didn't want to talk to them, but I didn't care what they had to say.

"Then we lost that aircraft at Diego. The one where the aircraft commander flew a night visual approach to a field he'd never been to before. Instead of using an instrument approach, he performed a random steep, and never pulled it out."

"Yes, I remember. That was

the one where everyone on the crew respected his abilities, knew he was too steep, yet didn't say anything because they thought he knew what he was doing."

"That's the one. It hit real close to home for me. Suffice to say, by this time I was really beginning to believe I was the best there was. I, single-handedly, was winning the we/they struggle. There was no one in the field who knew as much about flying as I did."

"Forgive me again, Dip," Mac interrupted, "I'm not following you again. Where's the connection between the Diego crash and your feeling of invulnerability?"

"It's like this," Dip said. "I knew the pilot on the plane. He was terrific! All of a sudden reality began to set in. I know Mac, but I pictured myself, in my imaginary headquarter's seat of power, and those on the line as the crew in that airplane. I wasn't listening, nor interested in listening to them; and they weren't interested in *either* listening or telling me what was going on. I realized at that point that I had *lost touch*."

"So, what was next?" Mac asked.

"I quit my job!" Dip answered.

"You what!" Mac replied. "How in the world do you do that?"

Dip smiled, "It wasn't easy. First, I went in to see the colonel, told him my conclusions, and asked him to release me. At first, he thought I was kidding, but when he realized I wasn't, he gave me a quality lecture of wise remarks I'll always refer to, but didn't recognize them as such at the time."

"He told me not to blame myself, such is the way of headquarters. Most of those assigned were chosen for a reason, a sort of master plan. You see, for an effective combat operation, many diverse elements have to be combined. Somebody's got to be tending the store, somewhere, to make sure our command is preparing and training in the right direction. For example, the Army builds their doctrine based upon a lot of the capability promises the Air Force makes. Headquarters guys, among a multitude of many other tasks, make sure we can deliver on our promises.

"I don't have to tell you the obvious, Mac. If we're losing our resources and not replacing them, we're not living up to our side of the bargain. As capability demands increase (as you know, night, low level tactics) our training programs have to intensify. Training in that environment becomes a lot more dangerous, and the only points in our favor are aircrew dedication and discipline.

"Headquarters offices—such as ops, plans, logistics, IG, safety, they're all organizing that effort. transportation, the surgeon, PA, DA, and the Comptroller, they're all in it too. Think of it like this; the first group is thinking up things for us to do, the rest are making it possible."

"Pretty profound," Mac nodded. "So what happened to you?"

"Like I said, I wasn't listening. I had a total mental block—tunnel vision! I had to get back to the line. I had to go back and personally fix it."

"You're doing it again, Dip," Mac quizzed. "So what was broken?"

"Nothing!" Dip shouted. "Not a *%**#** thing was wrong! I got back in a unit with my new outlook towards headquarters weenies and line pukes, and found I was wrong. Crews were professional, disciplined, and motivated. Sure, they still thought headquarters was a joke, but they took their jobs *very* seriously.

"Sounds crazy, but I felt as though 'I had been to the mountain.' Only what I found when I got there was a C. R. Terror look-alike who boomed at me: 'You JERK! You are a combat aviator, now go back and do your job!'

"I tell ya Mac, I'm a lot different now. I'm still as much a stickler for regs, and tech orders, and so forth. But I approach my flying with a lot more sense of purpose."

"So what happened with the promotion board?" Mac just had to know.

Dip laughed. "Well, while I was on my way to the mountain, I really became quite obnoxious. I angered some good people who were trying to help. But most seriously, I turned down some good advice, and instead resorted to classic career suicide. I got no more than I deserved."

"But it was for such a noble cause!" Mac responded. "Surely they must've taken that into consideration?"

"Ah, well, I don't have time to tell all of the story. Let's just leave it at the fact that I became *very* obnoxious. I was the one who lacked discipline then. In reflection, I would have done more to a subordinate who acted as I did."

"Any regrets?" Mac asked.

"Yes, but not for my actions," Dip answered. "I regret that I was never able to close the communications gap between headquarters and the field. I've been trying for five years, but I don't think I'll ever finish.

"It's like your job, Mac. People tend to think of safety as a separate office or function. Some think it operates totally in a void from what 'really has to be done.' It never occurs to them that there's a synonymous ring between mission accomplishment and safe mission accomplishment. *That doing things right, is also doing things safe.*"

"Oh, I like those words, Dip. Mind if I use them?" ✈

Flying-Hour Milestones

15,000

41 MAS
CMSgt. John E. White, Jr.

10,000

37 TAW
CMSgt. Kenneth E. Regan

76 MAS
Lt. Col. John B. Raven

166 TAG
CMSgt. James A. Boyce

403 TAW
MSgt. Walter P. Ferguson

7,500

22 AF
Col. Charles Z. Ridgway, Jr.

41 MAS
CMSgt. Dale F. Cozart
CMSgt. John E. White

55 AAS
Maj. William C. Hale

76 MAS
Maj. Victor B. Schwartz
CMSgt. John J. Giles
CMSgt. Jimmy P. Obi
CMSgt. Darrell R. Parker
MSgt. Frank H. Sellers
TSgt. Everett A. Bleichroth

86 MAS
Lt. Col. John R. Curtis

145 TAG
Col. William D. Lackey
Lt. Col. Harold D. Cadmus

21 AF
CMSgt. David J. Tellers
Lt. Col. Jesse M. Deal
Lt. Col. Everett S. Peterson, III.
CMSgt. Dennis L. Hovis
MSgt. James P. Young

435 TAW
Col. David O. Williams/CC

437 MAW
Col. James M. Galyen

773 TAW
MSgt. Earl W. Laird, Jr.

5,000

1 AES
SSgt. Alonzo Warren

7 MAS
Maj. Phillip G. Mahnken
Maj. Danny E. Parker
MSgt. Richard G. Brooks
MSgt. Carl W. Jones
MSgt. Earl H. Rummel
MSgt. Terone Smith
TSgt. Michael R. Beatty
TSgt. Gerard J. Cicio, Jr.
TSgt. Mark E. Gaboury
TSgt. Martin N. Labson
TSgt. Mark F. Ratigan
TSgt. Ronald S. Smith
TSgt. Philip E. Thompson

9 SOS
Capt. David A. Bores
Capt. Ronald J. Robbins

14 MAS
Capt. Robert C. Callahan
MSgt. Bismark Cosme

17 MAS
Lt. Col. Richard R. Moody
MSgt. Glenn F. Klette

20 MAS
Lt. Col. Dean Huntington
Capt. Jimmy D. Adams

31 ARRS
MSgt. Richard L. Simmon

41 MAS
Lt. Col. Clark J. Sprinkle
Maj. Lewis W. Briggs

56 MAS
MSgt. Charles A. Moulton

57 MAS
SSgt. John S. Ballard

75 MAS
Lt. Col. James H. Lea, Jr.
Lt. Col. Robert H. Sheets

86 MAS
TSgt. Michael R. Beatty

130 TAG
SMSgt. Bennie E. Warden

773 MAS
SMSgt. Henry Enriquez, Jr.
MSgt. Charles E. Bucher
MSgt. Charles R. Haworth, Jr.
TSgt. Lawrence J. Johnson, III.

Det 2, 1400 MAS
Lt. Col. Earl W. Riley

Det 3, 1401 MAS
Lt. Col. Leonard S. Spitzer

2,500

1 AES
SMSgt. Colon T. Jones
TSgt. Margaret H. Coates

2 AES
MSgt. Thomas E. Reece
TSgt. Crispulo B. Valencia
SSgt. Larry D. Jones
SSgt. Tanunikia M. Riley

7 MAS
Maj. Janet L. Kunciw
Maj. Henry W. Mauer
Maj. Philip R. Saenger
Capt. Peter E. Anderson
Capt. Michael K. Dooley
Capt. Mark Kleinman
Capt. Paul R. Lechner
Capt. Joseph M. Montgomery
Capt. Randall K. Oakley
Capt. Jerry L. Walker
MSgt. David R. Weilz
SSgt. Kent R. Flom
SSgt. Gene S. Lorenz
SSgt. Jaleel Mohamed
SSgt. Johnny E. Patrick
SSgt. Cecil C. Tucker
SSgt. Gregory A. Verbiski
SSgt. Richard L. Backes, Jr.

20 MAS
Capt. Randall L.H. Gupton
Capt. Kenneth B. Lightsey
Capt. Mark C. Muhlenberg
SMSgt. Danny E. Matthews
MSgt. Luis A. Almodovar
MSgt. Bruce B. Barker
TSgt. James E. Cooper

SSgt. Steven Boozer
Sgt. Marc A. Hoyle

31 ARRS
Capt. Charles S. Shaw

33 ARRS
Lt. Col. Thomas A. Samples
Capt. Alan L. Bedsole
SMSgt. William P. St John
MSgt. Michael J. Engles
MSgt. Nicholas Harris
MSgt. Lawrence W. Yates
TSgt. Jerry R. Dunphy
TSgt. Bruce E. Lancaster
TSgt. Ronald Miller
TSgt. Gary B. Stout
TSgt. George R. White
SSgt. Matthew L. Armistead
SSgt. Brady J. Bobo
Sgt. Douglas E. Priest

37 TAS
Lt. Col. Carroll R. Polk
Capt. Jeffrey L. Gossner

39 SOW
Lt. Col. Arthur A. Jistel
Lt. Col. Enrique A. Oti, II.
Maj. Randall M. Hill
Maj. Joe E. Tyner
Maj. Michael V. Walsh
Capt. Michael H. Cohen
SMSgt. Richard E. Dwornick
SMSgt. William H. Rogers
MSgt. Gregory A. Bailey
MSgt. Larry W. Beaver
MSgt. Joe A. Black
MSgt. Don C. Ford
MSgt. Charles V. Longshore
MSgt. Haldor C. Regi
TSgt. Robert J. Andrus, Jr.
TSgt. Herbert K. Black
TSgt. Richard M. Duncan
TSgt. Raymond W. Gouthro
TSgt. Stephen S. Graham
TSgt. Matthew E. King
TSgt. Randell L. Lake
TSgt. Arthur J. Millard
TSgt. Robert L. Russell
TSgt. Lewis D. Waters
SSgt. Bruce E. Carver
SSgt. Douglas J. Leach
SSgt. James D. Mathews, III.

57 MAS
Capt. Guillermo Berdini
Capt. William F. Browning
Capt. Michael V. Czarniak
Capt. Thomas M. Jumper
Capt. Douglas G. Rehder
Capt. Thomas J. Ross

61 TAS
Lt. Col. John J. Murphy, Jr/CC

145 TAG
Lt. Col. Samuel A. Coleman
Lt. Col. Edward Garner, Jr.
Lt. Col. William C. Kearney
Lt. Col. Wayne B. Larue, Jr.
Lt. Col. Fisk Outwater
Maj. Mark B. Burquest
Maj. Thomas W. Bush
Maj. William A. Christian
Maj. Charles W. Collier
Maj. Terry D. Covington
Maj. Carter T. Gill
Maj. Robert J. Glitz
Maj. William H. Goodwin
Maj. Terry E. Heath
Maj. Mark C. Hooper
Maj. Jerry S. Huntley
Maj. William B. Moose, Jr.
Maj. Carl P. Linn, Jr.
Maj. James A. Nance
Maj. William K. Richardson
Maj. Terry S. Treece
Maj. Gary H. Wilfong
Maj. George O. Wright, Jr.
Capt. William M. Altman, III.
Capt. Larry D. Biggers
Capt. Douglas D. Bondurant
Capt. Gary M. Boyd
Capt. Iwam B. Clontz
Capt. Jimmy T. Crawford
Capt. Brendan P. Kelly
Capt. James S. Lott, Jr.
Capt. Charles R. Pearce, III.
Capt. Richard H. Shore
Capt. James B. Winters
SMSgt. Calvin W. Helton
MSgt. Ronald P. Belk
MSgt. Walter R. Burris, Jr.
MSgt. Walter R. Edwards
MSgt. William F. Garrison
MSgt. Larry D. Grant
MSgt. Archie C. Hartis
MSgt. James T. Rorie
TSgt. Joe B. Atchley
TSgt. Edward G. Barbee
TSgt. Kenneth L. Griffin
TSgt. Andrews M. Huneycutt
TSgt. Robin W. Martin
TSgt. John A. McRae, III.
TSgt. Thomas M. Payne
TSgt. Franklin H. Reynolds

314 TAW
Maj. Johnny F. Broner
Maj. Scott R. Hansen
Capt. Steven W. Allshouse
Capt. Ronald A. Wilt
SMSgt. Thomas W. Gunnels
MSgt. Tommy G. Kitchens
MSgt. Bobby D. Looney
MSgt. Richard D. Roedel
TSgt. Gerald E. Choma
TSgt. Gary W. Teipel
SSgt. John L. Jaynes, Jr.
SSgt. Cecil C. Tucker
Sgt. Kevin J. Johnson

463 TAW
Col. Albert R. Hart/CC
Col. Carl L. McPherson/CV
Lt. Col. Robert A. Lowe
SSgt. Panya Poonpiset

772 TAS
Lt. Col. Robert H. Meyers/CC

773 TAW
Lt. Col. Larry R. Gore
Capt. Robert G. Ford
Capt. Don B. Welsh
Capt. Heinrich G. Wunderle
MSgt. John P. Aulerich
MSgt. Anthony P. Galvez
MSgt. David R. Ladd
TSgt. Thomas O. Makibbin
SSgt. Billy D. Miller, Jr.

Det 3, 1402 MAS
Capt. James H. Mitchell

1,000

20 MAS
SSgt. Michael G. Mullikin

31 ARRS
Maj. Wayne W. Stanley
Capt. John D. Grigsby
Capt. George L. Niles
MSgt. Gary M. Mitchell
SSgt. Michael J. Darling
SSgt. Joseph H. Johns
Sgt. Steven W. Kelley
Sgt. Mickey L. Dixon

33 ARRS
Maj. John B. Shafer
Maj. Paul N. Smith
Capt. Thomas A. Bauer
Capt. William A. Mozzo
Capt. John D. Nelson
Capt. Kevin C. Nesbitt
Capt. David R. Newell
Capt. Raymond G. Walizer, Jr.
1st. Lt. Michael A. Hodges
SSgt. Joseph E. Hardin
SSgt. Patrick J. Hogan
Sgt. William B. Feller

Det 3, 37 ARRS
Lt. Col. Daniel Daley
Capt. David Dubuque
Capt. Perry Fitzgerald

Det 5, 37 ARRS
Capt. Steven Jenkins
Capt. Robert Lindsay
1st. Lt. Gilbert Cowell
1st. Lt. Mitchell Graves
1st. Lt. Thomas Sebens

Det 7, 37 ARRS
1st. Lt. Keith Morgan

Det 8, 37 ARRS
Capt. Todd Rich

Det 9, 37 ARRS
Capt. Guy McGhee
Capt. Mark Ward

Ranks and units are those at time of award. ✯

The 314th Tactical Airlift

Airlift Professionals at Work

The Little Rock pattern—a busy place.

Little Rock airlift heritage—C-119 "Flying Boxcar."

A-10s w

Ground defense flight ready to hit the trail.

By Maj. Thomas C. Wienzierl
Supervising Editor

Well, *TMF* fans, this month we're off to Razorback country to visit Little Rock AFB, Arkansas, home of the 314th Tactical Airlift Wing.

But first, a little historical background on "the Rock." As Air Force bases go, Little Rock is a relative newcomer. When an Air Force representative arrived to survey the Little Rock area during the Air Force's expansion in 1951, local citizens began a campaign to convince Air Force officials Little Rock was a good choice. They offered over 6,000 acres on which to build a base.

After the Air Force's announcement, in September 1952, to build a medium jet bomber base near Jacksonville, 15 miles northeast of Little Rock, local citizens began raising money and buying land.

Construction began in December 1953, and the base opened to air traffic in September 1955, with SAC's 70th Strategic Reconnaissance Wing as host. The 70th flew RB-47s, while the 384th Bombardment Wing, flying B-47 medium bombers, took up residence at Little Rock in January 1956. Over the ensuing years, Little Rock saw several SAC missions and aircraft come and go, such as the 308th Strategic Missile Wing and its Titan intercontinental ballistic missiles, KC-135 tankers, and B-58 Hustler medium bombers. Another SAC-affiliated unit on base, the Arkansas Air National Guard's 189th Air Refueling Group, converted to C-130s in 1986 and conducts initial C-130 training as the 189th Tactical Airlift Training Group.

Little Rock transferred to Tactical Air Command control in April 1970, under the 64th Tactical Airlift Wing. The unit's mission was to provide air transportation for airborne forces by airdrop, airland, and aerial extraction (sound familiar?). The base's long association with C-130 training began with arrival of the 4442d Combat Crew Training Wing, tasked to provide training for entry-qualified pilots and flight engineers.

t Wing

-10s waiting to take on JRTC "bad guys."

The 64th was inactivated 31 May 1971, with the arrival and transfer of assets to the 314th Tactical Airlift Wing. With the transfer of the 314th from TAC to MAC in December 1974, Little Rock bears the unique distinction of having operated under three major commands—SAC, TAC, and MAC.

But, enough history. *TMF* went to Little Rock to get *today's* story. Of course, being a safety magazine, we began our trip with a visit to the 314th Safety Office.

I sat down with Chief of Safety, Lt. Col. John Hertzog, and Chief of Flight Safety, Maj. Russ Urdahl. The first thing I learned was to not associate Little Rock strictly with initial C-130 training. It's fast becoming a total tactical warfare training operation, and not only from the airlift perspective. Besides it's training mission, with the 34th Tactical Airlift Training Group and it's three squadrons, the 16th Tactical Airlift Training Squadron, responsible for initial C-130 qualification; the 62d Tactical Airlift Squadron, providing mission qualification training; and the 34th Technical Training Squadron, responsible for academic training, instructor upgrade training, student administration, and simulator refresher courses, the 314th hosts a wide range of other training and operational units, all generating unique safety concerns.

One of those unique concerns is generated by the Joint Readiness Training Center, (JRTC). "The JRTC is an Army, light infantry-type operation that evaluates battalion-size organizations at Fort Chaffee, near Fort Smith, Arkansas. They arrive with associated air, a rotation squadron of fighters, or attack aircraft. We're not only responsible for their flight safety, but also the ordnance they bring in. They started with two OA-37s and two A-10s, everything two-ship elements. They're now working four-ship F-16 flights. The Navy now wants to get involved with a whole squadron of F/A-18s and F-14s. It looks like we'll eventually get up to eight to 12-ship F-16 serial launches," Colonel Hertzog explained.

"They have FACs and suppression missions as well as sit strip alert, just like a real war. So now you have dissimilar airplanes in the traffic pattern, and an increased midair potential what with our own numerous VFR recoveries," he continued.

"Our own units get involved as well," interjected Major Urdahl. "Our two operational squadrons, the 50th and 61st, get called on to fly insertion and other tactical missions, so you really have to plan well and watch out for the other guy."

The 50th and 61st, the 314th's operational squadrons, have excellent safety records; both outfits reached the 150,000 mishap-free flying hour milestone in 1988.

Discussing both squadrons, Colonel Hertzog commented, "They share a rotation squadron commitment and they've done an outstanding job. The last four rote squadrons have doubled the activity of its immediate predecessor. They've seen big increases in both cargo and passengers. Rote is a big experience builder. It's a safety challenge, putting a lot of people in an entirely different environment, but they continue doing a great job."

Of course, records like this are only possible with heavy emphasis on safety by a unit's leadership. That dedication to safety was reflected at a ground safety meeting chaired by Mr. Bobby Hunnicutt, 314th Ground Safety Manager. He introduced Col. Terry Thompson, 314th Vice Commander, who opened the meeting with these remarks: "First, I'd like to tell you how much I appreciate your work in the ground safety area. We're preparing for our ORI/UEI, which means we have to work hard keeping our work areas, shops, and flightline safe places to work. It also means files and paperwork have to be right, too. Keep up your bulletin boards, safety meetings, and inspections. We've been doing well lately, but that's just more reason to work harder. When things are going well, we might let our self-discipline lapse. We can't do that. Our grade on an ORI will be affected by safety problems. We can't let that happen, not only for the points we lose, but most importantly because of the hazards we might expose our people to. Go back and redouble your efforts."

Keeping your base safe is critical, but if the bad guys can come over the fence and blast you out of your boots, it doesn't matter how safe you are. Well, I found out there are people at Little Rock working to prevent that situation.

314th maintenance pros at work.

Colonel Hertzog and I visited with Maj. Dale Hewitt, Commander, 1314th Ground Combat Readiness and Evaluation Squadron, also known as "Volant Scorpion."

We discussed the unit's beginnings and operations from the safety viewpoint. "The need for such a unit was generated mostly by our involvement in Grenada. That was the first time an Air Force security detachment had actually secured an airfield in combat conditions since Vietnam. They felt they could have done it a little better. We have a cadre of approximately 60 people," explained Major Hewitt, "and we have just about the largest expenditure of small arms ammunition in the Air Force. We use any Air Force weapon a person can carry, on up to .50 caliber machine guns."

"As a result, explosives safety is very important," Colonel Hertzog interjected. "We have ten areas on base open to access for playing games or hunting. Cleaning up duds or unexpended ammo is critical, and Major Hewitt's people do a great job helping us in that area."

"Our mission is to increase the combat readiness of our MAC forces," Major Hewitt added. "We take our job very seriously. Everyone agrees safety has to be paramount in everything we do out here, and we've received great support across the board."

The 1314th's mission has evolved to the point where it's responsible for evaluating air base ground defense units not just in MAC, but the entire Air Force.

After a tour of the 1314th's area, Colonel Hertzog and I journeyed to the 314th's maintenance complex. The good relationship with the maintenance folks was evident by the reception we received in the wing's Quality Assurance (QA) shop. Chatting with SMSgt. Gerald Lutes, we found he was especially enthusiastic about their new fuel cell repair facility. "Having a hangar designed and built for fuel tank work adds a lot of safety. We can get the work done quicker with less risk." His remarks echoed those Major Urdahl had made earlier that day: "We have the best ops-maintenance relationship I've seen. They really work hard to give us the best airplanes they can.

"They are also very deep into preventive maintenance, especially on things like landing gear, which receive a lot of punishment here, considering our flight training operation. We flew about 50,000 hours last year and recorded over 72,000 landings. That's a lot of wear and tear."

The same recognition of the link between maintenance and safety was evident in the wing's engine shop. Speaking with TSgt. Alford Wickliffe, I found out the 314th Field Maintenance Squadron serves as the "Queen Bee" facility for C-130 engines from Hurlburt, Eglin, and Keesler. The facility processes about 200 engines per year, and is capable of working on both Dash 7 and Dash 15 engines.

To wrap up the visit, Colonel Hertzog and I attended a squadron certification at the 16th Tactical Airlift Training Squadron. Prior to the meeting, Colonel Hertzog had the pleasure of presenting the 50,000 Mishap-Free Flying Hour Milestone Award to Lt. Col. Robert Topel, Commander.

Concluding the certification of one new Flight Examiner Aircraft Commander and two Instructor Aircraft Commanders, Colonel Topel summed up with what I found to be the core of Little Rock's safety outlook: "The philosophy of this squadron is that safe aircraft operation and total mission accomplishment are not mutually exclusive events. We all know flying is inherently dangerous, particularly with students. We assume a certain risk when we do that. Several of you came from squadrons with a wartime mission, but no matter what your previous mission was, this squadron's mission is student training, in wartime as well as peacetime. There is no difference in the risk we'll take one day to the next."

To me, Colonel Topel's last sentence represents the professional approach displayed by everyone I met at Little Rock; a consistent dedication to doing the job professionally and safely.

I'd like to thank everyone at Little Rock for their exceptional Southern hospitality. Unfortunately, there's never enough time to meet everyone (or enough space to quote everyone I did meet). Thanks again, I was impressed!

NEXRAD: Lifesaver

By John Joss
UNISYS Corporation

"Everyone talks about the weather, but no one does anything about it," says folklore. In fact, weather is serious business, with incalculable social and economic effects.

Dr. Richard Hallgren, Director of the National Weather Service and Associate Administrator of the National Oceanographic and Atmospheric Administration (NOAA) puts it in perspective: "It's not widely appreciated, but the United States has the world's severest weather. China is second. Europe, by comparison, hardly has weather. More than 85 percent of our national emergencies stem from floods, tornados, and thunderstorms, with precipitation such as rain, snow, and hail causing the heaviest damage.

"Add air transportation and the Defense Department, and you can see the problem—hundreds of lives lost each year, billions of dollars in property damage."

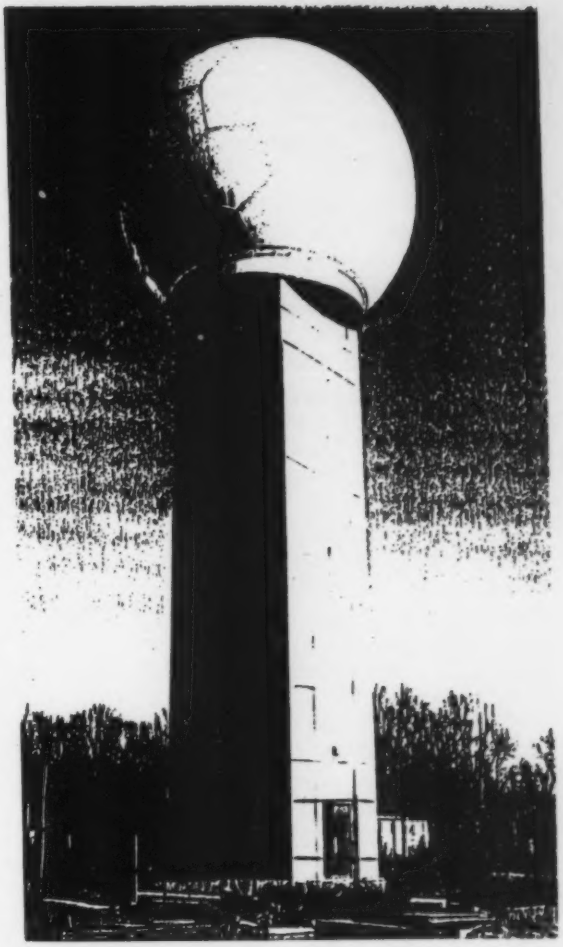
Now folklore is yielding to technology. Something very big is being done about the weather. Culminating a 10-year cooperative effort by three Government branches, NEXRAD—next generation weather radar—is being deployed. Weather forecasting will be changed irreversibly and forever.

The branches: the National Weather Service (NWS) of NOAA, the Federal Aviation Administration (FAA), and the U.S. Air Force.

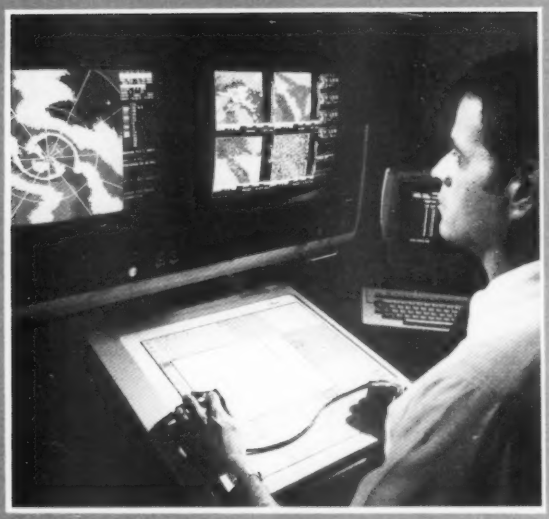
"NEXRAD is a national program, a powerful scientific tool addressing our own, Department of Defense (DOD), and Department of Transportation (DOT) needs," Hallgren points out. "Logistical and operational commonality give better data at lower cost, translating directly into services people can see, feel, touch, and act upon."

FAA Associate Administrator Neal Blake, in charge of weather-related technology, echoes Hallgren: "We shared development and we'll share production costs—in R&D, 60 percent NWS, 20 percent each for us and DOD. Production—50 percent NWS, 25 percent each DOD and DOT."

NEXRAD has just completed final development and integration at a Unisys Corp. test facility in Hartford, Conn. Now it's entering production, under a $450 million, multiyear contract at the company's Great Neck, New York, facilities where it was designed. By the mid-1990s, almost 200 NEXRAD systems should be installed in the United States and key sites worldwide, with 165 systems on order and 30 more optioned.



At NEXRAD's heart is doppler radar, a technique long known but only recently commercialized for weather radar. Doppler radar's unique ability to sense velocity changes is the underlying principle. "Doppler effect" makes train whistles or car horns change sound pitch as they approach and travel away from a listener. This "frequency shift" in sound, light, and electronic signals was discovered by the Austrian scientist whose name has become a household word in radar.



The Principal User Processor (or PUP) for NEXRAD is composed of three main subsystems: the twin color CRT displays; a graphic tablet and "mouse;" and a monochrome terminal and keyboard. Information can be displayed on the color screens using the graphic tablet and buttons on the "mouse." Text on the storm formations are displayed to the right of each display. (Unisys photo)

Doppler radar lets meteorologists "see" inside storms, tracing the detailed dynamic behavior of wind and moisture. Moisture, precipitation, or dust, even tiny amounts, reflect radar energy. NEXRAD's advanced computers take radar pulse reflections and process them with new algorithms developed, tested, and proved during the 10-year research program by scientists, meteorologists, and engineers at the three agencies, and at Unisys.

At each radar site, a small, rugged Unisys computer takes raw Doppler radar returns and produces data on reflectivity (water content), velocities, and spectrum width (a measure of turbulence). This information is then transmitted to a high-powered mini-computer at 1.5 megabytes per second using wideband fiber-optic lines or microwave line-of-sight radios.

The minicomputer processes this basic data and develops products that visually depict storm formations.

The weather products are then sent to a workstation or principal user processor (PUP) for display. Weather products can be sent to any PUP over a standard telephone line, and each minicomputer is able to transmit live weather radar products to a number of PUPs simultaneously.

As the NEXRAD national network becomes operational, the NWS is expected to make PUPs available to TV and radio stations, commercial weather forecasting services, and other government agencies that require up-to-date weather information.

The workstation or PUP comprises key computer hardware/software elements: the computer itself is an advanced, 32-bit machine addressing massive internal and external memory and sending weather data, processed by powerful software, to twin color-graphic video displays that scale or rotate weather information at will.

Operator control is via conventional keyboard/CRT display or—a pioneering use in such systems—a hand-controlled "mouse" on an electronic tablet for rapid, powerful system control. A color printer lets users reproduce weather displays as needed. High-speed data communications link all system elements and the world.

The result of this computer technology is impressive: NEXRAD can monitor and analyze current and projected storm behavior rapidly, with unprecedented accuracy, then generate automatic alarms when computer-derived forecasts predict severe weather.

NEXRAD shows the computations in displays tailored to a wide range of users, in a new, uniquely powerful color-graphic form. Cool blue-green colors indicate movement toward the radar, warm red-oranges show air moving away. Storms appear as matrices of colored squares indicating precise geographical extent. Scales from close in to far out, and orientations and presentations from vertical to horizontal, can be chosen and displayed instantaneously.

Dr. Ken Crawford is NWS area manager at Norman, Oklahoma: "We'll see improvements in tornado detection using the map background and display, enabling us to be much more specific geographically. We'll be able to plot and analyze flash-flood events we couldn't before. Getting high-quality digital data routinely means accurate rainfall estimates and will enable us to improve our hydro-meteorological models.

"Because doppler has parallel capabilities to probe clear air turbulence, we will be able to create frequent, detailed wind profiles up to about 10-15 thousand feet for better short-term forecasts such as microbursts. And better wind data in space and time than we've ever had."

One NEXRAD can monitor a large, local area of several hundred square miles. Acting in concert, multiple NEXRADs can analyze and display regional or national weather trends.

NEXRAD forecasts and severe weather warnings will, for the first time, provide essential data in time to permit decisions to be made that will help avert tragedy. NEXRAD will rapidly pay for itself.

"How crucial is it?" says Blake. 'Take wind

shear, which NEXRAD and TDWR (see box) address: At Andrews Air Force Base, right after Air Force One had landed, we measured a 200-knot shear, from 130 knots headwind to 70 knots tailwind."

Gen. George Chapman, former Commander of the Air Force's Air Weather Service, amplifies: "The Continental United States is (the Air Force's) top priority, with two-thirds of our assets here. We've saved hundreds of million of dollars through advanced severe-weather warning—for example, getting dozens of jets in ahead of hail at Vance Air Force Base, near Oklahoma City, in 1979, saving an estimated 83 million dollars."

Hallgren highlights the role of the famed Norman, Oklahoma, National Severe Storms Laboratory (NSSL) where NEXRAD was tested and developed. It's appropriate—if the United States is world headquarters for severe weather, Oklahoma is its epicenter.

NSSL started in 1977-78 to test the first experimental doppler weather radar. Once the NEXRAD-like concept had been wrung out at Norman, the NWS-FAA-USAF technical team could specify the system in a competitive procurement lasting a year. Unisys won.

Wringing out the near-production system at Hartford helped Unisys refine the final configuration. This "value engineering" process simplified the final system, reduced circuit board size and complexity, added the latest computer power (memory, processor, peripherals) for higher performance, and cut costs while improving performance and reliability.

Steve Delligatti, Unisys NEXRAD program manager since 1980 explains: "Users are dealing with life and death information. The system must be easy to use, easy to repair after the internal diagnostics indicate the precise problem, and—above all—able to deliver extremely reliable service in remote locations. We predict, conservatively, that NEXRAD will require field service not more than once every two years."

General Chapman emphasizes that, "Our systems must be usable across a broad range of skills, from enlisted personnel without meteorological training to top scientists. That's one reason NEXRAD is so powerful—it automates many vital forecasting tasks."

The NWS, FAA, and DOD have other weapons in their battle against severe weather. All will be used and integrated in Man's endless struggles against the elements. Orbiting and geostationary satellites will continue to present the "long-term big picture" to weather watchers. NEXRAD will cover local, short term, and emergency situations and feed a national picture.

Everyone benefits: the taxpaying public, who will get better weather reports and warnings at net savings, as will all the special interests affected crucially by weather, including pilots and airline travelers, farmers and fishermen, and broadcasters and meteorologists.

"Our big challenges (with NEXRAD) lie ahead," says Crawford. "We've had six years of NEXRAD-like tests, not the real thing. It will deliver huge amounts of data—we need to learn how to use those data intelligently. Only humans can do that and make correct decisions."

NEXRAD geodesic radomes standing sentinel around the world will testify, all folklore to the contrary, that Man is no longer just talking about the weather, but is doing something about it. ★

Unisys' Weather Programs: NEXRAD, Wind Profiler, TDWR

Unisys is mounting a three-pronged attack on world weather: NEXRAD, Wind Profiler, and Terminal Doppler Weather Radar (TDWR). NEXRAD is entering volume production, Wind Profiler is in initial, small-scale procurement, and TDWR is in the competitive proposal stage.

The three are complementary. NEXRAD, singly and linked, will deliver routine local weather and prompt emergency warnings over wide areas. It is being bought jointly by the National Weather Service (NWS), Federal Aviation Administration (FAA) and Department of Defense (DOD). Wind Profiler and TDWR focus on aviation weather and are being procured by the FAA.

Wind Profiler monitors en route winds and jetstream behavior, from the surface to 50,000 ft, sensed by a unique square matrix antenna grid invented by Unisys, laid flat close to the ground, operating under computer control.

Terminal Doppler Weather Radar (TDWR) is a local, tightly focused doppler radar using NEXRAD-like technology. It will "look" at small, critical areas on and around the airport as often as several times per minute—the time constant of some adverse winds. It will use its own, dedicated TDWR display, supervised by a weather specialist with continuous communications access to traffic controllers.

The TDWR program was scheduled for award in late 1988, with initial installation planned for the 1990s at selected airports with a history of severe weather problems, especially wind shear, rotor turbulence, and microbursts.

TDWR will be able to give second-by-second decision data on severe wind or weather that potentially threaten aircraft operations in time for the weather specialist to advise controllers. The controllers will, in turn, be able to warn pilots preparing for takeoff or approaching for landing in plenty of time to avoid the danger.

Adapted from: *The Journal of Air Traffic Control*

Honorable Mention 1976 MAC Flight Safety Writing Contest

CELEBRATING 35 YEARS OF *TMF*: 1954 - 1989

The SOD

He never goes PCS or takes leave.

By Capt. Jerry M. Brewton
Det 4, 37 ARRS
Little Rock AFB, Arkansas

THE SOD

You'll find him wherever there's an aircraft, and he never goes PCS or takes leave. Within his command are aircrews that rank among the best, and the worst, that have ever flown.

* * *

The marshaller raised his hands and began gesturing. Captain Bell released the brakes and the C-130 began to roll slowly. Satisfied that everything was in order, he turned to his student, "Okay, Larry, she's all yours. Don't get in a hurry. Our departure time is one five, so there's no rush."

The big aircraft rolled away and Capt. John Lee, safety officer, climbed into his truck and radioed the Ops Center that Trash 99 was out of the blocks and all was in order.

As the SOF truck pulled away, Grimm arrived. Grimm was the SOD, and his long black limousine moved unseen onto Trash 99's parking spot. He stepped out and carefully surveyed the ramp. On the concrete he found a cotter pin, several small pieces of safety wire, and a few drops of hydraulic fluid. He relayed this information to *his* Ops Center and moved down the flight line to the next parking spot.

"Trash Niner-Niner, Taxiway One for a nineteen-fifteen controlled departure." Larry Whiteside spoke slowly and distinctly into the microphone.

Ground Control crackled their clearance. "Trash Niner-Niner cleared as filed. Contact departure control as soon as practical after takeoff."

As the C-130 climbed to altitude, Capt. Barry Archer, instructor navigator, reviewed the low level route they would be flying. He knew the route by heart, but didn't want his student, 2d Lt. Carl Eller, to get ahead of him. He felt these routes were really too easy. Maybe today he could get Bell to drop down a little, deliberately get off course, or do something to make the training a little more challenging. As Archer entertained this thought, Grimm's hollow eyes began to gleam. He'd monitored all departures today and, so far, no one had really seemed to need his services. But now, if Bell could be convinced to show his stuff . . . Probably no chance, but a good SOD is always ready, so he contacted his Ops Center to have a crew bus standing by.

* * *

"Dammit, I don't have time to go fly," complained Sphere, down at the local rescue unit. "I'm up to my neck in paperwork. See if one of the other pilots will take the mission for me so I can get these training records straight."

As a helicopter pilot, Don Sphere was highly regarded. He'd graduated at the top of his training class, proven his ability in combat as a gunship pilot, and received his share of praise for his performance as training officer since joining the missile support helicopter detachment. When Sphere first arrived, Grimm had monitored him closely. After all, it seemed only natural an old gunship pilot would find missile support flying too dull for his spirit.

During Sphere's initial orientation, Grimm watched him preflight, listened to his briefings, and evaluated his skill and attitude as a pilot. Sphere flew each mission as if he knew the SOD was watching over him—he was as precise in performing his duties as Grimm was in performing his. Grimm finally decided that Sphere wasn't ready to join the Dark Wing. Still, he'd kept an eye on him and now, with Sphere's complaint about not having time to fly, the gleam in Grimm's eyes grew brighter. Perhaps today Sphere could be enticed to follow him on his dark mission.

Grimm was ageless. He'd flown every aircraft in the inventory, and was always included on the first flight when new weapons systems were being checked out. He didn't need an invitation—the duties of the SOD required that he know every aircraft. But his knowledge didn't end with matters pertaining to flight. He was an expert in all phases of maintenance; if he were a ground safety officer he would have pleased any commander with his knowledge of proper procedures and ability to detect violations.

Grimm moved continuously in performing his duties—from the flight line to the hangar and from the hangar to the club. His energy

was unending; at times he could be found loitering outside the stag bar waiting to see if anyone needed his services on the way home after "last call" had passed. He was the SOD, the Supervisor; and he did not neglect his duties even for a second. Anyone who followed his leadership joined the Dark Wing, but the Dark Wing always seemed to be undermanned. There was a critical shortage of pilots, navigators, flight engineers, maintenance personnel, and office workers. Although few joined the Dark Wing willingly, no one ever broke his allegiance once becoming a member.

Sphere's mind wandered during his mission briefing. He was behind on his additional duties and had hoped to spend the afternoon catching up. Once the training records were reviewed, he had to complete his monthly schedule reliability report and then maybe get in a few holes of golf before sundown.

As he checked the flight authorization block which said "Hazards to Flight" he was vaguely aware of someone saying, "The 130s are working the low level routes today." Just another routine run to the missile sites—fly out, drop off the tool box, and come home. With a little luck he'd still make the first tee by 1700.

Sphere ran a quick preflight, briefed his copilot, and was calling for taxi in a matter of minutes. Neither the pilots nor the maintenance crew were aware this mission had a passenger on board. If anyone had seen him they would have mistaken him for a shadow. Grimm's presence was never known until his services were needed.

As the chopper taxied out, Grimm called his Ops Center. "Dispatch the crew bus," he commanded.

* * *

"I've been talking to Captain Archer and he thinks this route is too elementary for a man of Lieutenant Eller's ability," Bell announced as he took control of the aircraft. "We're going to see if he can keep the right heading with old Trash Niner-Niner skimming the treetops."

With that he pushed the nose over and the Hercules was soon cruising a mere 200 ft above the ground. At this altitude, the jobs of the pilots and navigators became more demanding. Bell had flown many low level missions in SEA, and felt they should be included in the training syllabus. The school had what it called "low level training" but no one flew at 500 to 1,000 ft in an actual tactical low level situation. The sky was clear and there were no abrupt terrain changes, so for a few minutes Bell was going to let the students see what low level was all about. This wasn't the kind of thing one discussed during Happy Hour, but these were good students and no one had to tell them that.

"Hey, Captain, the hydraulic pressure is fluctuating a little." Sergeant Thompson's words brought Bell's eyes to the gauges.

"Thanks, Sarge, I'll keep a close watch on that," Bell replied. In the shadows, Grimm used his cape to conceal the glow now burning in his eye sockets.

* * *

"It never fails," Sphere groaned as he lifted the chopper from the landing pad. "Once you get airborne, they treat you like a high class taxi. If I hadn't had to divert to pick this guy up, I'd have finished that reliability report by now. At least he could have been ready when I got there. Sitting on the pad and waiting for half an hour when I've got more important things to do. Damn! Damn! Damn!"

As he neared 200 ft, Sphere remembered he hadn't bothered to do a clearing turn before he took off. Oh, well, no one will be flying this low he thought as he banked right to check the traffic. Then his heart jumped to his throat and his hands froze on the controls as he realized that someone was flying that low—Trash 99.

Grimm threw back his cape and screamed the hideous laugh that only he was capable of. The SOD had done his job once again.

A shadowy bus pulled up in front of the headquarters of the Dark Wing. Grimm was now visible to all the passengers and as they viewed his grotesque features they realized they were condemned to his command.

"Welcome, gentlemen," he hissed. "I don't have to tell you your duties. They're really very simple. You have just joined the ranks of dead aviators, and for eternity you must ponder your mistakes."

As Grimm turned to leave, Sphere found he still had a voice of sorts and hissed a question. "Who are you? Your name tag says Grimm, but who are you?"

"Me? Why, I'm the SOD," Grimm answered.

"The what?" asked Bell.

"The SOD. The Supervisor of Dying!" cackled Grimm. "Now you'll have to excuse me. I've got a flight to catch." ✈

Don't leave yourself with . . .

ZERO MARGIN

As crewmembers, we're responsible for a multitude of things we must either do or be aware of. One thing we must do is communicate clearly, both over the radio and with fellow crewmembers. Another very important task is to keep constantly aware of our changing environment, whether on the ground or airborne. Failing to do so can reduce our safety margin to zero.

The importance of these responsibilities was tragically demonstrated 15 November 1987, when Continental Airlines Flight 1713, a McDonnell-Douglas DC-9-14, crashed on takeoff from Denver's Stapleton International Airport.

Flight History

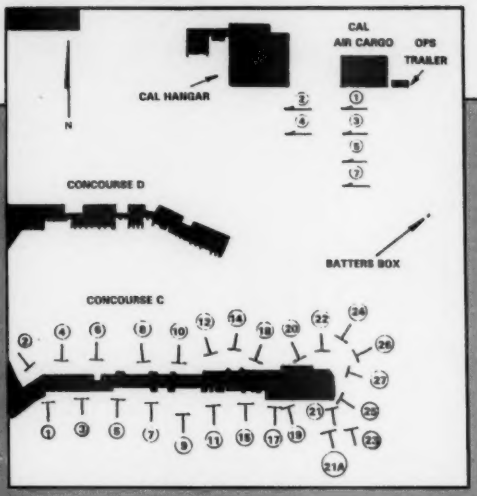
Flight 1713 was a regularly scheduled, but delayed, passenger-carrying flight between Denver, Colorado, and Boise, Idaho. The original departure time of 1225 was adjusted due to adverse weather conditions at Denver. The flight was to be the first of a 3-day sequence of flights for the captain and first officer. Continental Flight 1713 was the Captain's third trip sequence as a DC-9 captain and the First Officer's second trip sequence as a line DC-9 first officer.

Between 1200 and 1230, the Captain signed a dispatch flight release for Flight 1713. The Captain indicated on the release that he was a "high minimums" captain. (With less than 100 hours as pilot in command, the FAA required his minimums be raised by 100 ft and one-half mile, or no less than 300 ft and 1 mile.) The Captain also asked for a weather update from the Continental weather clerk a short while later. While the crew was in the gate area awaiting their airplane's arrival, one of the flight attendants asked the Captain who was going to make the landing at Denver on the return leg. The Captain replied that he would. The flight attendant later stated she was concerned because she had heard the weather was supposed to remain poor at Denver and she knew the First Officer was new to the company.

At 1303, the First Officer contacted clearance delivery and received a routine clearance to Boise Airport; however, the flight didn't request taxi clearance from air traffic control even though their path to the deice pad crossed a designated airplane movement area. Denver Tower is not equipped with Airport Surface Detection Equipment (ASDE) and visibility was about 2,000 feet. Consequently, air traffic control was unaware Flight 1713 had taxied from its gate. The flight proceeded to the deice pad where it was deiced between snorkels 1 and 2 after the crew shut down engines. The deicing truck operator that assisted in deicing Flight 1713 stated they had been ordered to spray the tail surfaces of every airplane going through the deice pad. He characterized some accumulations of snow on airplanes as 1 inch, but didn't specifically remember the upper surface accumulation on Flight 1713. He recalled removing an ice/slush buildup from the airplane's nose gear.

The cockpit voice recorder (CVR) indicated that the last sound of deicing spray hit the airplane at 1346:22. At 1347:30, one of the flightcrew members stated "Blast off," and at 1349:01, a flightcrew member called "Commence start."

Meanwhile, at 1346:58, Continental Flight 594 called clearance delivery with a request to go to the deice pad. The clearance delivery controller told the flight to monitor ground control. At 1347:33, the ground controller told Flight 594 to "taxi to the pad." Flight 594 stated they were prevented from taxiing



CONTINENTAL AIRLINES

De-Ice Procedures at Hanger Pad

This procedure was developed in an effort to de-ice aircraft as near takeoff time as possible.

Time required for this procedure is approximately 30 minutes (40 minutes DC-10). Time includes 10 minutes to depart gate and taxi to pad and 20 to 30 minutes for de-icing.

1. IF GATE HOLD PROCEDURES ARE IN EFFECT:
   Inform Ramp Control of your expected taxi time so that they can schedule de-ice of your aircraft. Continue to monitor both Ramp Control and Clearance Delivery (or Gate Hold as appropriate) so that changes can be coordinated. i.e.: New taxi time would require new de-icing time. Delays on de-ice pad might require new taxi time.

   IF GATE HOLD PROCEDURES NOT IN EFFECT:
   Contact Ramp Control for coordination of de-ice and for pushback clearance.

2. When cleared by Ramp Control to start engines and taxi, taxi to East end of Concourse C and contact Clearance Delivery requesting clearance to taxi to the pad. Clearance Delivery will hand you off to Ground Control.

3. On arrival at the pad, ground personnel will direct the aircraft onto pads 1, 2, 3, 4, 5, and 7 via the east edge of the ramp to park on a westerly heading. Wide body aircraft will use only pads 2 and 4. De-icing for aircraft on the D Concourse is located at the old Frontier hangar. All MD-80/DC-9 aircraft will be inspected by maintenance after de-icing.

4. Use aircraft side number, not flight number, when communicating with de-ice pad ground personnel.

5. Shut down all engines and leave APU running. When notified that spraying is about to begin, shut off all air conditioning packs and close APU bleed valves. PACKS MUST BE OFF TO AVOID FUMES AND SMOKE IN CABIN DUE TO INGESTION OF DE-ICE FLUID.

6. Inform Ramp Control when de-icing of your aircraft is complete and start engines.

7. When ready to taxi from de-icing pad contact Clearance Delivery and they will hand you off to Ground Control.

Aircrew deicing procedures in effect 15 November 1987.

because they were blocked by another Continental airplane. The ground controller then told Flight 594 to let him know when they could taxi, and they replied "Wilco." Several minutes later, the flightcrew stated they were ready to taxi to the deice pad, and the controller replied "Continental 594, watch for two companies inbound to there, taxi to the north side of the runup 35 left." The flightcrew responded with "594." The crew of Flight 594 didn't question the controller's instruction to taxi to the Runway 35L runup area, and contrary to those instructions, taxied to the deice pad.

At 1351:12, Flight 1713's crew contacted clearance delivery for the second time with the radio call ". . . taxi *from* the ice pad." The clearance delivery controller acknowledged with "Continental 1713 monitor ground twenty-one nine." The clearance delivery controller later stated when he received this transmission he thought Flight 1713 was still at its gate and was asking for clearance *to* the deice pad. He didn't note that the Captain used the word *from* in his radio transmission.

Several seconds later, the ground controller contacted Flight 1713 with the radio call "Continental 1713 left side taxi to the pad give

way to two companies on the south side of Delta goin' into there it's an Airbus and a ah MD-80." The crew initially responded with "Roger," but after some cockpit discussion about the intent of the instructions, requested clarification. The ground controller responded, "Yeah behind the Airbus. I think ah he's just got out of the alleyway now. They're goin' northbound."

Flight 1713's Captain called for the taxi checklist at 1358:51. The flightcrew taxied the airplane from the deice pad to the ramp area near the end of Runway 35L, where they awaited takeoff clearance. At that juncture, the order of flights on the north side of the runup area for Runway 35L was: Continental Flight 1617, Continental Flight 65, and Continental Flight 1713. A short while later, Continental Flight 875 taxied in behind Flight 1713.

The local controller cleared Continental Flight 1617 into position to hold at 1400:56. The Cockpit Voice Recorder (CVR) revealed that a crewmember of Flight 1713 then said "We're next." This was not a radio transmission. Shortly afterward, the local controller attempted to contact Continental Flight 594 to clear it on the runway but received no response because they were still on the deice pad with engines and radios off. At 1404:14, Continental Flight 65 took off. Shortly afterward, Continental 875 acknowledged a radio check from the tower controller. The Captain of Flight 1713 prompted the First Officer at 1404:53 to advise the tower controller they were in the Number One position on the north side.

The First Officer did so at 1406, but received no response from the tower controller. The tower controller then inquired if Continental 875 could get around a company MD-80 (actually 1713's DC-9), referring to what he thought was Continental Flight 594; Flight 875 responded "Affirmative." At 1408:07, Flight 594 contacted ground control for clearance to taxi from the deice pad to the end of the runway. Clearance was granted, and the flight taxied into the takeoff lineup.

As Flight 875 taxied around Flight 1713 and onto the runway, the First Officer on Flight 1713 again called the tower and stated they were Number One for takeoff. At 1407, the controller inquired if Continental Flight 594 was listening and if Flight 1713 was an MD-80. Continental Flight 594 again did not respond because it was not monitoring tower frequency. Flight 1713's crew replied they were a DC-9. The captain of Flight 875 stated that about this time he observed the right side of Flight 1713. He later stated that he could discern no visible contaminants on the airplane other than a 4 X 4 ft, square-shaped patch of snow or frost on the fuselage and that he based his takeoff decision on that observation. Flight 875 took off at 1412. Shortly afterward, Continental Flight 1713, now correctly identified by the tower, was cleared onto the runway.

Flight 1713 was cleared for takeoff at 1414:31, approximately 27 minutes after completing deicing. Winds were reported from 360 degrees at 14 knots, with a runway visual range (RVR) of 2,000 feet. The captain was making the cockpit callouts and conducting nonflying pilot duties. The captain reported power set at 95 and 93 percent N_1 15 seconds later. He called out "100 knots" at 1415:17; V_1 11 seconds later and "rotate" and "positive rate (of climb)" about 3 and 8 seconds after the V_1 call. Sounds of nosewheel rotation stopped less than a second after the "positive rate" call. At 1415:39.5, the sound of a compressor surge was heard, followed by an exclamation by a crewmember and three more engine compressor surges. The sound of initial impact with the ground occurred 4 seconds later.

The Captain, First Officer, one of three flight attendants, and 25 passengers died. Two flight attendants and 52 passengers survived.

Weather

Surface weather observations taken by the National Weather Service (NWS) at Stapleton before and after the accident were:

Time—1351 MST; ceiling—indefinite 500 ft obscured; visibility—one-half mile; weather—moderate snow and fog; temperature—28 degrees F.; dew point—27 degrees F.; wind—030 degrees at 10 knots, gusting to 17 knots; altimeter—29.92 inches; remarks—Runway 35R visual range 1,200 feet.

Time—1445; ceiling—indefinite 300 ft obscured; visibility—three-eighths mile; weather—moderate snow and fog; wind—030 degrees at 10 knots gusting to 18 knots; altimeter—29.92 inches; remarks; Runway 35R visual range 600 ft (airplane mishap).

Moderate snow is defined as snowfall which reduces visibility to less than five-ighths of a statute mile but not less than five-sixteenths of a statute mile.

Analysis

The National Transportation Safety Board (NTSB) investigated this accident and noted several decision-making deficiencies by Flight 1713's Captain. The Board believed he should have realized he was exposing the airplane to airfoil contamination for too long a period and should have returned to the deicing pad for another deicing before takeoff. In addition, he showed poor judgment in allowing an inexperienced First Officer to attempt a takeoff in weather conditions that existed at Denver. Further, from data recovered from the CVR and the Flight Data Recorder (FDR), it appears he didn't attempt to arrest the First Officer's rapid takeoff rotation. The engine compressor surges weren't causal in the accident, as they were likely the result of the engine intakes no longer being aligned with the relative wind during dynamic airplane maneuvering.

Evidently, the Captain didn't understand company procedures concerning taxi from the gate through the deice pad to the runup pad. His failure to contact ground control for taxi clearance to the deice pad precipitated a series of events that caused a portion of the 27-minute delay between deicing and takeoff clearance.

Company procedures required the Captain to inspect the airplane when takeoff is delayed more than 20 minutes after deicing. The Captain didn't examine, or request wing examination, even after 27 minutes had elapsed. Although there was no intercockpit discussion of this requirement, a comment about increasing engine power momentarily for engine anti-ice indicated he was aware of elapsed time since engine start. Unfortunately, he appeared to have linked icing conditions on the ground with optimum engine operation rather than optimum airfoil effectiveness. It's possible the Captain thought that since they were ready to take off approximately 20 minutes after deicing, a return to the deicing pad for more deicing wasn't necessary, in spite of the unanticipated delay of about 7 minutes.

According to McDonnell-Douglas, distributed roughness elements having a height of only 1/10,000 of the wing chord can adversely affect the maximum lift coefficient and significantly increase stall speed. This height corresponds to about .015 inch on a DC-9. As an example, wing surface roughness of .03-inch thickness causes a 20 percent reduction in lift and may increase stall speed from 128 knots to as high as 152 KIAS. In addition, operation with ice-contaminated wings may result in increased pitch sensitivity and/or roll oscillation. Normal control inputs may result in greater than normal pitch responses, and roll oscillations may require control wheel deflections to counter the roll, resulting in spoiler actuations further reducing the DC-9 wing's lifting capability. Moreover, DC-9-10 series airplanes, such as that used on Flight 1713, are even more susceptible to such control problems because they lack slats or other leading edge devices which tend to suppress the adverse effects of small levels of contamination. In addition, asymmetrical contamination may result in the unexpected and premature stall of one wing only, with resultant wing drop off.

Probable Cause

The National Transportation Safety Board determined the probable cause of this accident was the captain's failure to have the airplane deiced a second time after a delay before takeoff that led to upper wing contamination and a loss of control during rapid takeoff rotation by the first officer. Contributing to the accident were the absence of regulatory or management controls governing operations by newly qualified flight crewmembers, and the confusion that existed between the flightcrew and air traffic controllers that led to the departure delay.

Application to MAC

This accident defines the need for precision in all we do as crewmembers. With only an invisible electronic link between our airplane and, in this case, ground control and the control tower, all we have are prescribed terminology and procedures insuring complete understanding and compliance with prescribed procedures. Each minute's delay caused by miscommunication and the resulting confusion gave environmental conditions the opportunity to control the situation.

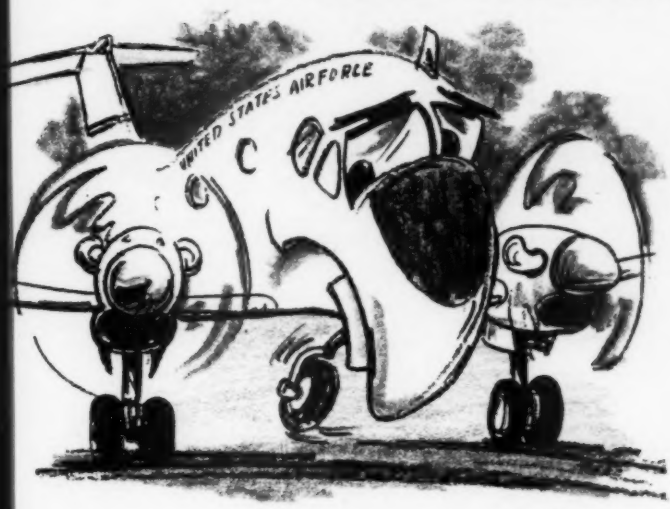
We've all been told at one point in our flying career to "fly the airplane, don't let it fly you." Apply the same philosophy to communication and weather. Do your utmost to communicate precisely, and use all available weapons to prevent the weather from "flying you."

Don't reduce your safety margin to zero.

Adapted from: NTSB/AAR-88/09

QUICKSTOPPERS

TALK ABOUT PUTTING YOUR FOOT IN IT!



Seems this here Super King Air, known as the C-12 to only intimate friends, was prepositioning to a DV spot for a pick-up. During block out, the pilot heard a *strange* sound from the rudder pedal area and the pedal seemed to "give" slightly. He checked brakes and steering and continued taxi to the runup area.

After runup, the pilot began taxiing to the DV spot. While applying pressure to the rudder pedal for nosewheel steering, the left pedal BROKE OFF! Oh-my-gosh, aircraft control was quickly transferred to the right seater who stopped the airplane.

Inspection revealed the horseshoe mount failed at both points where it attaches to the rubber pedal arm.

UH, WHAT WOULD HAPPEN IF I PULLED THIS?

The Huey crew was performing a full-scale FCF prior to signing for the depot-repaired sling wing. After an uneventful FCF profile and landing, the rotorhead extraordinaire decided to see if the fire handles worked.

Well, we guess it worked, 'cause the engine started winding down. This looked good enough, but he inadvertently pushed the handle back in. Goodness gracious, the main fuel switch was still on and boy, did that engine get hot! Fuel pumped into the combustion chamber, the engine re-lit, and the inlet temperature went over 1,000 degrees Centigrade.

It would've been nice if the repair bill had only been in the four digit range, but it topped $11,000.

QUICKSTOPPERS

"IF AT FIRST YOU DON'T SUCCEED —"

(January 1972)

After takeoff in a T-39, the crew retracted the landing gear but were unable to get an up-and-locked indication. Not being the kind to give up easily, they *recycled the gear FOUR times,* but still couldn't get it up. Finally admitting defeat, they lowered the gear and landed.

Investigation revealed the problem was probably due to an alligator clamp, used to ground the aircraft, which had been left on the nosewheel door. The clamp became wedged between the door and the forward fuselage, preventing full nosewheel retraction.

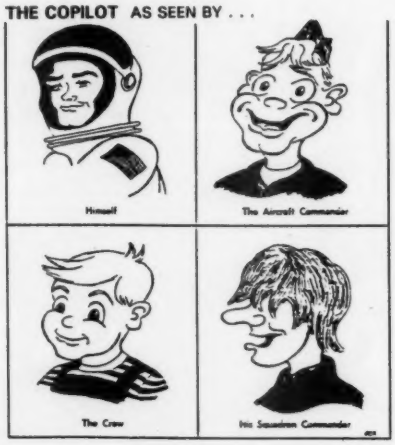
The pilot said he hadn't seen the clamp during his preflight inspection, which says something about the degree of professionalism involved in the flight. But the fact that he recycled the gear four times says even more.

Whenever a piece of machinery doesn't do what it's supposed to do the first time, it's trying to tell you something. When the machinery in question is something as important as a landing gear system, you really should listen. If there's something wrong with it, repeated operation probably won't fix it and may well mess it up even more.

Unless you have specific instructions for your aircraft that are different, here's a good rule for gear malfunctions in any airplane: If you can't get an up-and-locked indication—the first time—put the gear back down. If it goes down-and-locked, leave it alone and land.

(June 1970)

THE COPILOT AS SEEN BY . . .



(October 1969)

THE AIRCRAFT COMMANDER, AS SEEN BY . . .

I'VE GOT IT

(October 1970)

Definitions:
When I say, "I have it," I have it.
When I say, "You got it," we have it.
When I say, "I've had it," I've had it!
Case in Point - Helicopter Incident.

Student pilot was attempting a normal approach to touchdown. During the approach, the IP observed the ground speed to be slightly fast. In order to graphically demonstrate an incorrect approach, the IP allowed the student to continue. *(Good trial and error method of instruction.)* After touchdown, the aircraft continued forward and proceeded off the landing pad *(no sweat for helicopters).* After leaving the pad, the IP noticed *(good)* a depression in the ground ahead *(bad).* IP told student, "I have it," *(good call, refer to above definitions)* and pulled in collective *(magic handle in helicopters for up-down, now!).* BUT, IP did not put his hand on the cyclic *(similar to pitch and bank maker in real airplane).* The student, upon hearing the IP's "I have it," let him. As the collective took effect, the nose pitched up causing the other end to contact *(hit)* the ground. IP then took it *(all)* and landed without further damage.

Primary Cause: Supervisory Factor in that the IP did not physically assume control after orally saying so.

Moral for IPs: If you say you are, you might as well, otherwise nobody will.

CELEBRATING 35 YEARS OF *TMF*: 1954 - 1989

After Deadlines

MAC GARNERS PRESTIGIOUS AWARDS—A MAC C-5 aircrew and a C-5 loadmaster won two of the Air Force's aeronautics awards. A 13-member C-5 crew assigned to the 436th Military Airlift Wing, Dover AFB, Delaware, received the Mackay Trophy, awarded for the "most meritorious flight of the year." The crew received the award for a flight in conjunction with a Intermediate Nuclear Forces Treaty mission. The crew flew into a Soviet airfield, preparing for the mission with no data on runway, taxiway, ramp load-bearing capability, no approach plates (except some written in Russian), no references to navigational aids, no access to weather reports, and no depiction of terrain obstacles or other hazards.

TSgt. William A. Wray, a 9 MAS flight engineer, also from Dover, was awarded the Cheney Award for his "act of valor, extreme fortitude and self-sacrifice in a humanitarian interest performed in connection with aircraft." Sergeant Wray's actions in fighting a wheel-well fire on a C-5 during a mission in Pakistan were instrumental in controlling the blaze until firefighters could arrive on scene.

Also, the Military Airlift Command received the 1988 Major General Benjamin D. Foulois Memorial Award for flight safety. Check the back cover of this issue for the award citation.

MAC'S HUMANITARIAN TRADITION CONTINUES—TSgt. Sharon Dixon of the 2d Aeromedical Evacuation Squadron, Rhein Main AB, West Germany, comforts two of 37 Armenian children airlifted to Andrews AFB, Maryland, from Rhein Main in February. The children, injured in the December earthquake that killed more than 35,000 people, were airlifted to various places in America to receive specialized treatment. Their treatment is sponsored by Project HOPE. (U.S. Air Force Photo by SSgt. Perry Heimer)

☆ U.S. Government Printing Office: 1988—654-015/5

CITATION
TO ACCOMPANY THE AWARD OF
THE MAJOR GENERAL BENJAMIN D. FOULOIS
MEMORIAL AWARD

The Major General Benjamin D. Foulois Memorial Award is presented to the Military Airlift Command in recognition of the most effective flight mishap prevention program of all major commands during 1988.

The Military Airlift Command had a zero Class A and B flight mishap rate -- an extraordinary feat for such a large flying command. This impressive achievement came in a year when the Command moved more than 340,000 tons of cargo, 1,556,700 passengers, and 79,000 medical patients; had 95,492 departures; and flew over 673,360 hours.

The accomplishments of the Military Airlift Command exemplify the high standards of the Major General Benjamin D. Foulois Memorial Award and reflect great credit upon the Command and the United States Air Force.

Larry D. Welch

LARRY D. WELCH, General, USAF
Chief of Staff